

Listing of Claims:

1. (Original) A method for optimizing data searches in tree structures, the method comprising:

 organizing multiple search levels of data into sub-trees contained in fixed size blocks of shared external memory of an embedded processing system; and

 requiring each reference to the data to proceed from one-half of a sub-tree during a descent of the search tree based on a search pattern.
2. (Original) The method of claim 1 further comprising choosing the one-half before the descent from a root level of the search tree to reduce the size of the required reference.
3. (Original) The method of claim 2 wherein the step of choosing further comprises choosing the one-half based on a next bit test value of a bit in the search pattern.
4. (Original) The method of claim 3 wherein the one-half further comprises a right side or left side of a branch table of the sub-tree.
5. (Original) The method of claim 1 wherein organizing multiple search levels further comprises organizing the sub-trees to provide multiple levels of data with each reference.
6. (Original) A system for optimizing data searches in tree structures, the system comprising:

an embedded processor, the embedded processor including a tree search engine; and
external memory coupled to the embedded processor, the external memory containing
multiple search levels of data as sub-trees in fixed size blocks and providing data from one-half
of a sub-tree during a search tree descent by the tree search engine based on a search pattern.

7. (Original) The system of claim 6 wherein the tree search engine chooses the one-half
before the descent from a root level of the search tree to reduce the size of a required reference.

8. (Original) The system of claim 7 wherein the tree search engine chooses the one-half
based on a next bit test value of a bit in the search pattern

9. (Original) The system of claim 8 wherein the one-half further comprises a right side or
left side of a branch table of the sub-tree.

10. (Original) The system of claim 6 wherein the multiple search levels further comprise
organized sub-trees that provide multiple of data with each reference.

11. (Original) A method for optimizing data searches in tree structures, the method
comprising:

utilizing external memory in an embedded processing system;
organizing the external memory in multiple search levels of data as sub-trees in fixed size
blocks; and

providing data from one-half of a sub-tree during a search tree descent by a tree search engine based on a search pattern.

12. (Original) The method of claim 11 further comprising choosing the one-half before the descent from a root level of the search tree to reduce the size of a required reference.

13. (Original) The method of claim 12 wherein the step of choosing further comprises choosing the one-half based on a next bit test value of a bit in the search pattern

14. (Original) The method of claim 13 wherein the one-half further comprises a right side or left side of a branch table of the sub-tree.

15. (Original) The method of claim 11 wherein organizing multiple search levels further comprises organizing the sub-trees to provide multiple levels of data with each reference.

16. (Original) A computer readable medium containing program instructions for optimizing data searches in tree structures, the program instructions comprising:

organizing multiple search levels of data into sub-trees contained in fixed size blocks of shared external memory of an embedded processing system; and
requiring each reference to the data to proceed from one-half of a sub-tree during a descent of the search tree based on a search pattern.

17. (Original) A computer readable medium containing program instructions for optimizing data searches in tree structures, the program instructions comprising:

- utilizing external memory in an embedded processing system;
- organizing the external memory in multiple search levels of data as sub-trees in fixed size blocks; and
- providing data from one-half of a sub-tree during a search tree descent by a tree search engine based on a search pattern.